**Breath Stacking: A Guide for Community Physiotherapists**

Your patient has been provided with a breath stacking system by Beaumont Hospital. This document is intended to guide qualified physiotherapists on the use of breath stacking. Breath stacking can be used routinely to maintain/improve airway compliance and to facilitate airway clearance.

**Indications**

Patients with neuromuscular diseases often present with weakness of the respiratory muscles which can compromise the respiratory system. Specifically, there can be reduced inspiratory effort, peak expiratory flow and peak cough flow. Breath stacking enables a deep inhalation thus facilitating higher peak expiratory flow and peak cough flow. This can facilitate airway clearance which is vital for preventing respiratory tract infection.

Lung and chest wall compliance reduces over time in NMD’s. Breath stacking can help to maintain flexibility of these structures when practiced regularly.

**Equipment:**

- Ambu bag
- One-way valve
- Two green connectors
- Face mask

Figure 1.0 equipment required

![Figure 1.0 equipment required](image1)

Figure 2.0 Full circuit ready for use

![Figure 2.0 Full circuit ready for use](image2)

Figure 3.0 One way valve with arrows/flow towards patient

![Figure 3.0 One way valve with arrows/flow towards patient](image3)
Breath Stacking Technique

- Ask the patient to take a deep breath IN and simultaneously squeeze the bag.
- The patient should hold the breath IN (the 1-way valve will help this).
- The patient should try to take another breath IN on top of their deep breath while you simultaneously squeeze the bag again.
- This can be repeated 3-5 times until the patient gets a full deep satisfactory breath IN.
- The patient can then breath OUT or cough.

A breath stacking cycle is 3-4 breaths IN followed by a breath OUT or a cough.

A set is the number of cycles you wish the patient to complete.

The frequency per day will be advised by the prescribing physiotherapist. This could be between 3-5 sets 2-3 times a day.

Assisted Cough

If the patient has a weak cough, breath stacking can be accompanied by an assisted cough i.e. an abdominal thrust or a thoracic squeeze.

Evidence


